

**DISTRIBUTED COMPUTER MONITORING SYSTEM AND METHODS FOR
AUTONOMOUS COMPUTER MANAGEMENT**

I CLAIM:

- 1 1. A distributed system for monitoring the resources and events of each of a plurality of
2 networked computers, the system comprising:
 - 3 (a) a first database associated with a first computer, said first database
4 recording both a first data element and a second data element, wherein
5 each of the first and second data elements comprise information about
6 a current state of the first computer at a given time; and
 - 7 (b) a first agent executing on said first computer comparing the first and
8 second data elements in order to assess the occurrence of an
9 exceptional event.
- 1 2. The system of claim 1 wherein the first and second data elements comprise
2 information about a resource of the system.
- 1 3. The system of claim 1 wherein the first and second data elements comprise
2 information about an application's behavior.
- 1 4. The system of claim 1 wherein the first and second data elements comprise
2 information about a user's actions.
- 1 5. The system of claim 4 wherein the first and second data elements further comprise
2 information about a system response to the user's actions.
- 1 6. The system of claim 1 wherein the first and second data elements comprise
2 information about a network.
- 1 7. The system of claim 1 wherein the second data element is compared with the first
2 data element before the second data element is stored in the database.
- 1 8. The system of claim 7 wherein the second data element is compared with the first
2 data element in real time.
- 1 9. The system of claim 1 further comprising a second computer agent executing on a
2 second computer.

- 1 10. The system of claim 9 wherein the first agent notifies the second agent of the
2 occurrence of the exceptional event.
- 1 11. The system of claim 10 wherein the notification is postponed while the first agent is
2 not able to communicate with the second agent.
- 1 12. The system of claim 10 wherein the notification is postponed until a period of low
2 latency and low utilization of a communications network connecting the first agent and the
3 second agent.
- 1 13. The system of claim 10 wherein the second agent generates and sends a response to
2 the first agent.
- 1 14. The system of claim 13 wherein the response comprises instructions to the first agent
2 related to the exceptional event.
- 1 15. The system of claim 1 wherein the first agent notifies a human user of the occurrence
2 of the exceptional event.
- 1 16. The system of claim 1 wherein the first agent notifies a server executing on a second
2 computer of the occurrence of the exceptional event.
- 1 17. The system of claim 16 further comprising a second database located on the second
2 computer storing the notification received from the first agent.
- 1 18. The system of claim 17 further comprising the server transmitting a response to the
2 agent.
- 1 19. The system of claim 17 further comprising the server storing the response in the
2 second database.
- 1 20. The system of claim 1 wherein the database comprises a relational database.
- 1 21. The system of claim 1 wherein the database is selectively pruned to reduce its size.
- 1 22. A method of analyzing resources and events of a first computer comprising:
2 (a) storing in a first database located within the first computer a first
3 dataset describing the resource and event characteristics of the first
4 computer at a first moment in time;
5 (b) storing in the first database a second dataset describing the resource
6 and event characteristics of the first computer at a second moment in
7 time;

8 (c) comparing the first dataset and the second dataset in order to
9 determine whether the differences indicate the occurrence of an
10 exceptional event; and
11 (d) if an exceptional event has occurred, initiating an exception handling
12 routine.

1 23. The method of claim 22 wherein initiating an exception handling routine comprises
2 notifying a second computer of the exceptional event.

1 24. The method of claim 22 wherein initiating an exception handling routine comprises
2 notifying a human user of the exceptional event.

1 25. The method of claim 23 wherein the second computer comprises a server.

1 26. The method of claim 23, further comprising the step:
2 (e) the second computer transmits a response to the first computer.

1 27. The method of claim 26, further comprising the step:
2 (f) the second computer stores the notification of the exceptional event in
3 a second database.

1 28. The method of claim 27, further comprising the step:
2 (g) the second computer stores the response in the second database.

1 29. A peer-to-peer system for monitoring the status of computers in a computer network,
2 the system comprising:
3 a plurality of computer agents, each agent capable of repeatedly storing status
4 information in a database at discrete points in time, each agent further capable of receiving,
5 storing in the database, and responding to queries made from any other agent;
6 wherein, each agent determines whether or not its current performance is consistent
7 with its past performance based upon a continuous, real-time analysis of the agent's own
8 database and, in the event that an agent determines that its current performance is
9 inconsistent with its past performance, addresses the inconsistency.

1 30. The system of claim 29, wherein addressing the inconsistency comprises querying a
2 second agent.

1 31. The system of claim 29, wherein addressing the inconsistency comprises querying a
2 human user.

1 32. The system of claim 29, wherein addressing the inconsistency comprises querying a
2 server.